



RTD filter

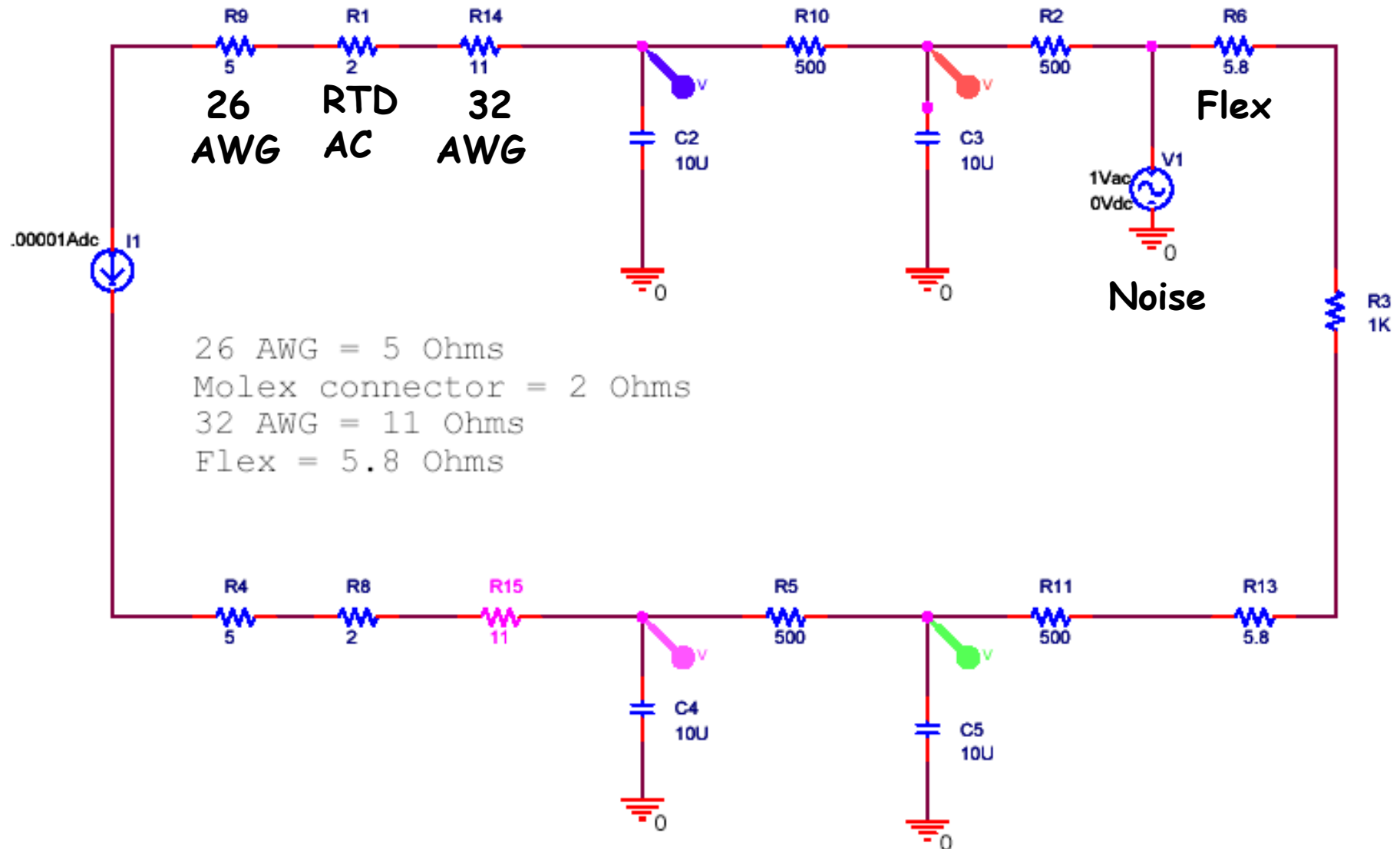
Bagby LO 9.19.05

- $\text{dB} = 20 \log |V_{\text{out}}/V_{\text{in}}|$
- $|V_{\text{out}}/V_{\text{in}}| = 1 / (1 + \omega^2 R^2 C^2)^{.5}$
- For -60dB @ 1kHz $R=158\text{K}$, $C=10\mu\text{F}$
- Instead of RC filter use RCRC
- $R=500\Omega$ $C=10\mu\text{F}$
- Run SPICE with
 - ♦ noise injected after flex cable and at RTD
 - ♦ filter on both sets of leads
- -60dB at 32 AWG lead achieved
- Need to build prototype and test



Noise @ flex

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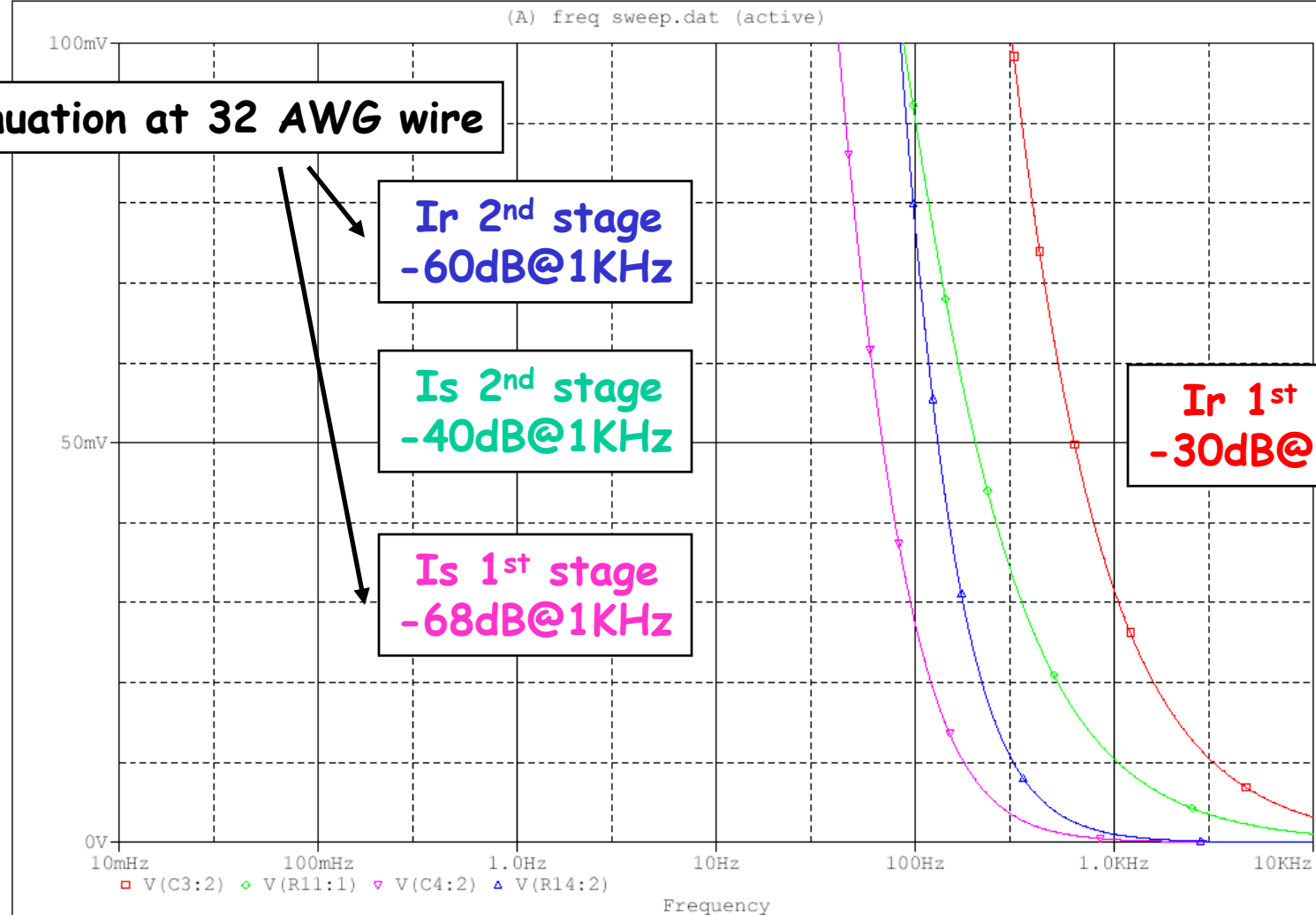




Filter response

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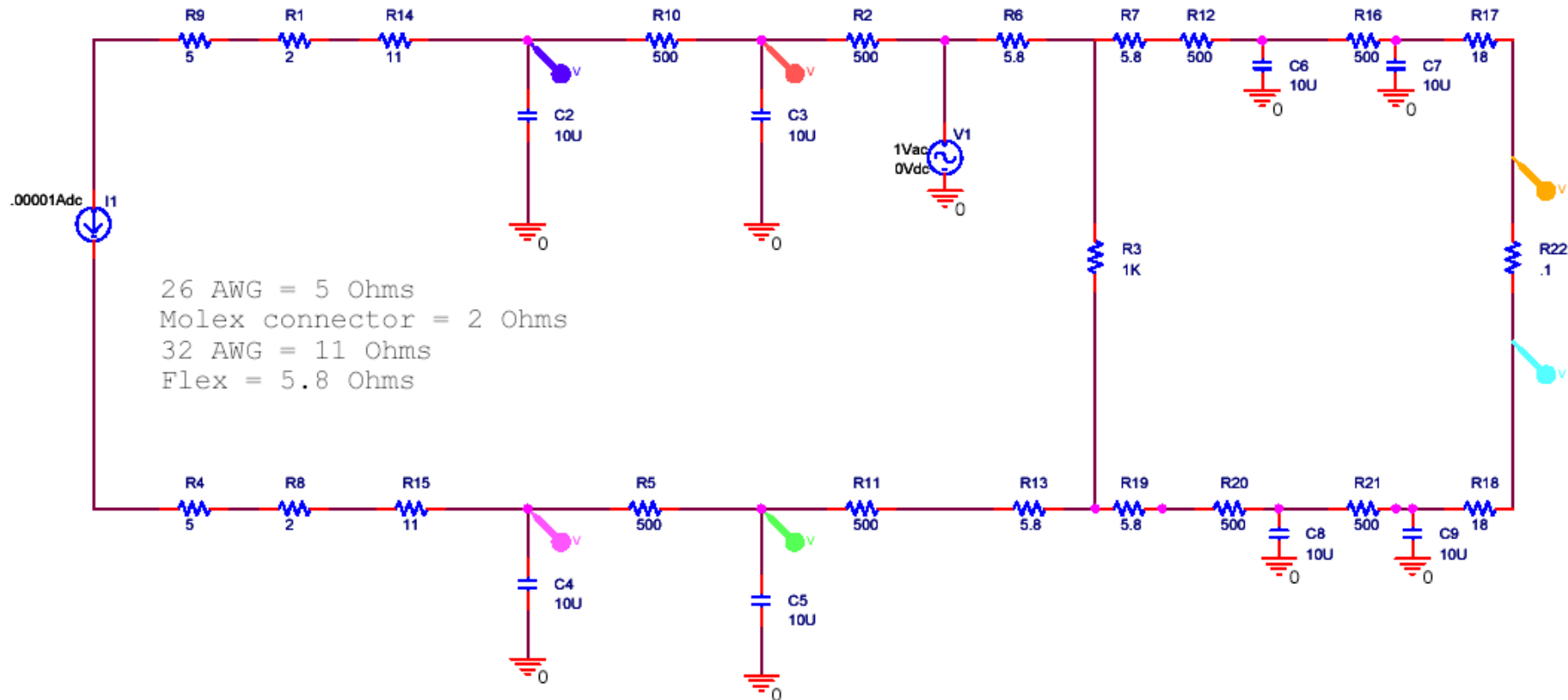
** Profile: "SCHEMATIC1-freq sweep" [C:\SPICE\L0\rtd_filter-pspicefiles\schematic1\freq sweep.sim]
Date/Time run: 09/19/05 16:29:35 Temperature: 27.0





Filter w/ V leads

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V lead response

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** Profile: "SCHEMATIC1-freq sweep" [c:\spice\l0\rt_d_filter-bspicefiles\schematic1\freq sweep.sim]
Date/Time run: 09/20/05 14:23:04 Temperature: 27.0

(A) de.dat (active)

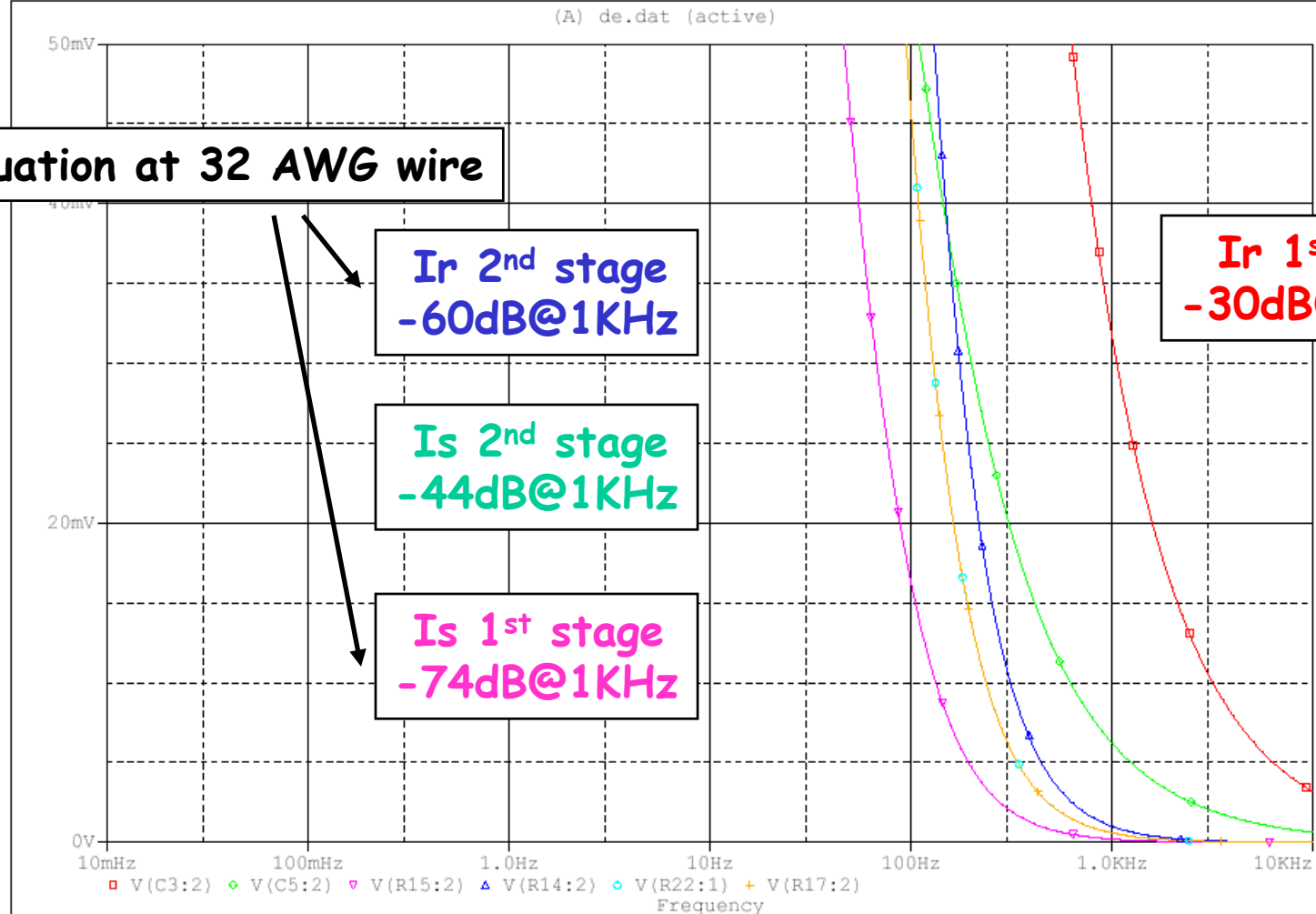
Attenuation at 32 AWG wire

Ir 2nd stage
-60dB@1KHz

Is 2nd stage
-44dB@1KHz

Is 1st stage
-74dB@1KHz

Ir 1st stage
-30dB@1KHz



Date: September 20, 2005

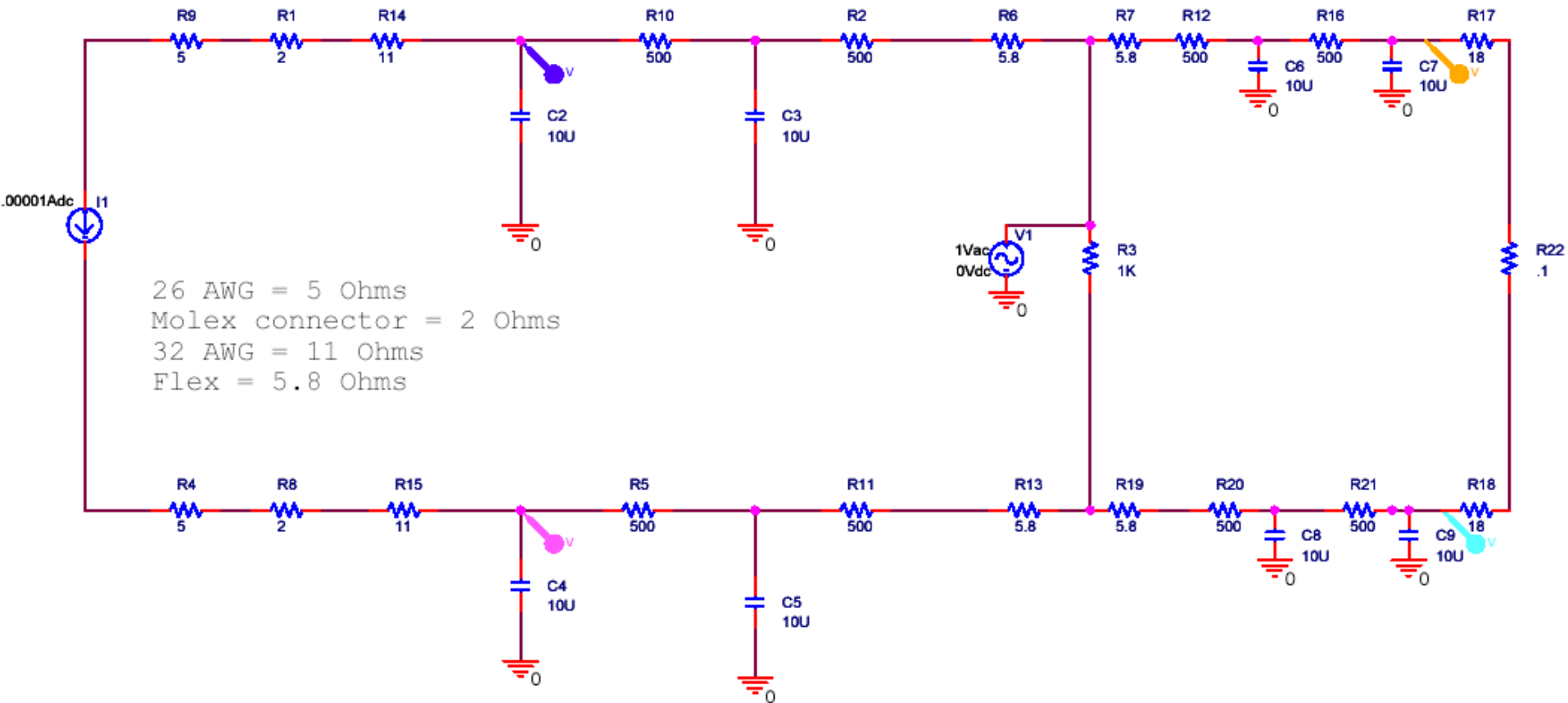
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Time: 14:28:21



Noise @ RTD

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Noise at RTD response

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** Profile: "SCHEMATIC1-freq sweep" [c:\spice\l0\rtd_filter-bspicefiles\schematic1\freq sweep.sim]
Date/Time run: 09/20/05 17:55:14 Temperature: 27.0

